

North Carolina data are consistent with national trends which show that more births occur in late summer while fewer births occur in late spring (4). A similar pattern exists for each of the years involved and for both races. However, unlike births by day of week, nonwhite births are less randomly distributed by month than white births. A 28 percent difference exists between the high and low for nonwhites compared to a 14 percent difference for whites. Tests applied to the monthly variations in births show significance ($P < .01$, 11df) for both races, separately and combined.

Though the existence of seasonal patterns in births has been established, reasons for this occurrence have not been fully explained. Could it be that man, like other creatures on earth, is subject to an inherent pattern of conception? This theory was explored by Erhardt et al (7) who considered the existence of a biological rhythm in women. Such a rhythm would cause more conceptions to occur in late winter, in turn producing more summer births. To test this hypothesis, a slightly altered form of Erhardt's own analysis of conceptions in New York City was done. North Carolina legitimate and out-of-wedlock births by race for 1974-76 were examined; the assumption was that if a biological pattern did exist, it would be apparent for all marital groups.

For analytic purposes, the data for each month were adjusted to a 31-day base and the ratios of observed to expected births were computed. The average adjusted number of births per month during the three-year period for each group was used as the expected. Since monthly fluctuations were sometimes quite erratic, the data were smoothed in order to bring to surface any underlying patterns. The smoothing process involved computing two-month moving averages from the calculated ratios and plotting the averages between the months (Figure 11).

Figure 11 shows seasonal patterns of births by marital status for the different ethnic groups. Although white legitimate births have slightly less monthly variability than the other groups, a consistent pattern of a rise in summer births and a decline of spring births is apparent in all ethnic groups with the exception of one group—out-of-wedlock births to races other than white and black. This group, on the contrary, reaches its peak in late winter and experiences two declines—one in late spring and one in the fall. Since births in this group are small in number, more variability is likely to occur, which could explain the inconsistency in this group.

These findings, though not completely providing evidence for the existence of a biological rhythm in women, do show similar seasonal patterns in births for five of the six groups. Other researchers (8), however, have suggested that increased conception occurs in the winter due to more opportunities for sexual intercourse—that is, cold weather keeps people indoors more. Also, the occurrence of more social festivities (Christmas, New Year) in the winter may have a bearing on sexual activities.

Stoeckel (5), in his study on seasonality in births in East Pakistan, found that the mean minimum monthly temperature 9 months before birth was inversely related to the number of births. This observation suggests that temperature is a positive correlate of conception.

Births by Lunar Phase

The relationship of obstetrics and the moon has been pondered for centuries and has been the subject of various studies. These studies are not necessarily whimsical, but to a certain degree, are based upon scientific fact.